

“XYZ” Site GASOLINE RELEASE INVESTIGATION

By
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EPA Region III
June 21, 2007

Gasoline Release Source



Mixed Gasoline/PERC Sources



Impacted Subdivision



Typical Duplex Home



"XYZ" Site

Legend

- Monitoring Well
- Groundwater and/or Soil Boring Location
- Dual-Phase Extraction Well
- Abandoned Dual-Phase Extraction Well
- Soil Vapor Extraction Well
- Abandoned Soil Vapor Extraction Well
- Soil Vapor Sample Location
- Soil Vapor Well
- Basement Sump
- Property Line
- Prince George's County/
Washington D.C. Boundary
- Former Chevron Facility No. 122208
Property Line
- Benzene 5 μ g/L (Geoprobe Data)
- MTBE 20 μ g/L (Geoprobe Data)
- Clay Body; Limits Dashed Where Inferred
- Sanitary Sewer Manhole
- Sanitary Sewer Pipe
- Storm Drain Manhole
- Storm Drain Pipe
- Topography Contours (2 foot intervals)

Date Prepared: June 21, 2004

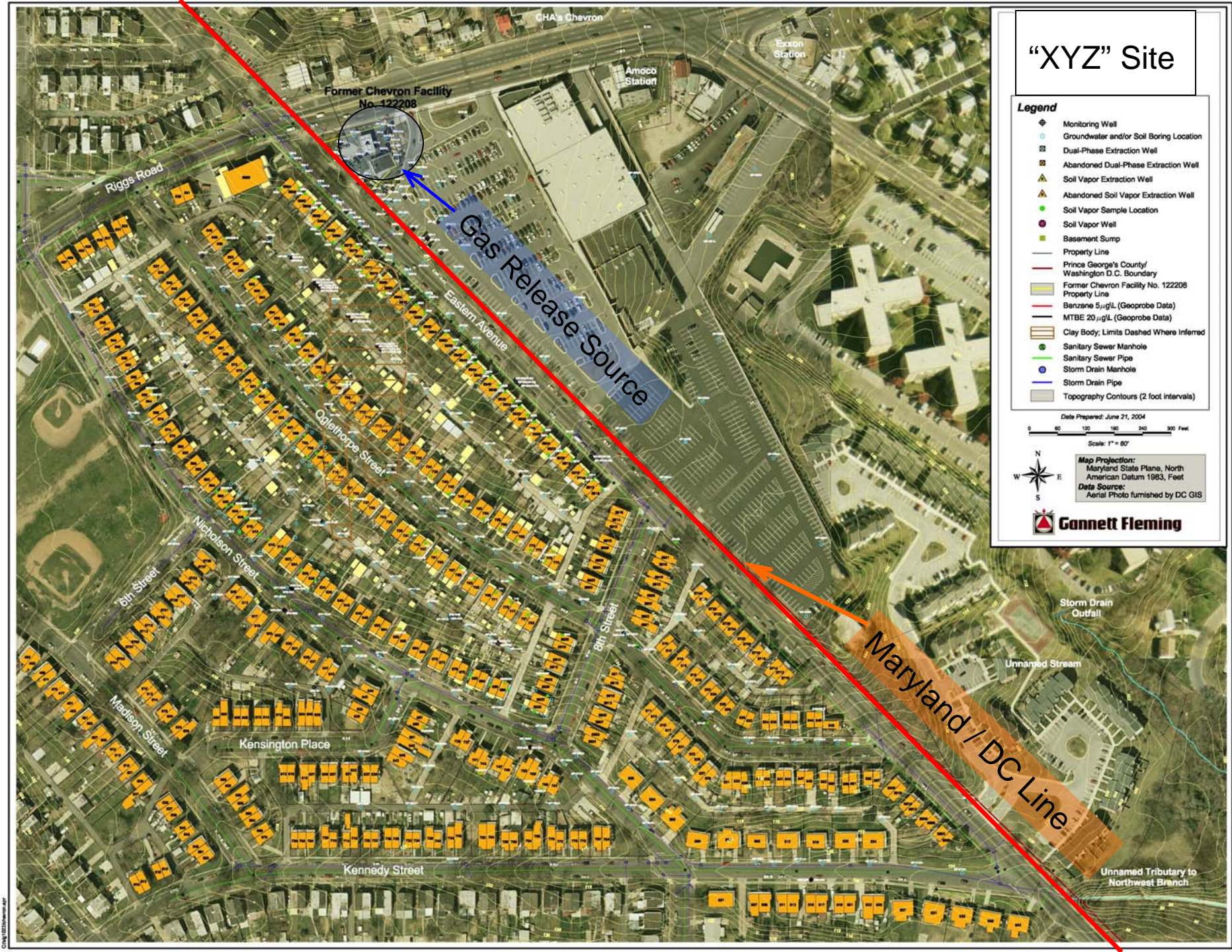
Scale: 1" = 60'



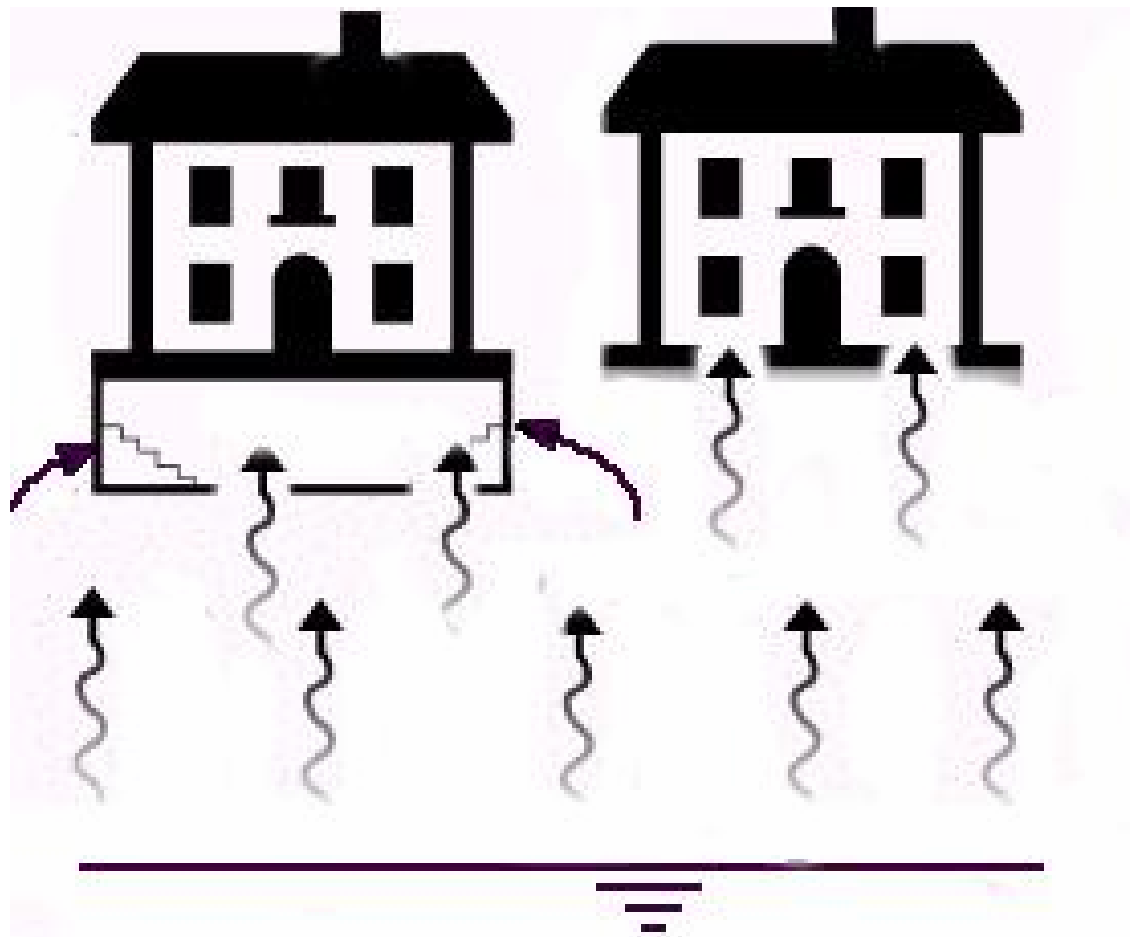
Map Projection:
Maryland State Plane, North
American Datum 1983, Feet
Data Source:
Aerial Photo furnished by DC GIS



Gannett Fleming

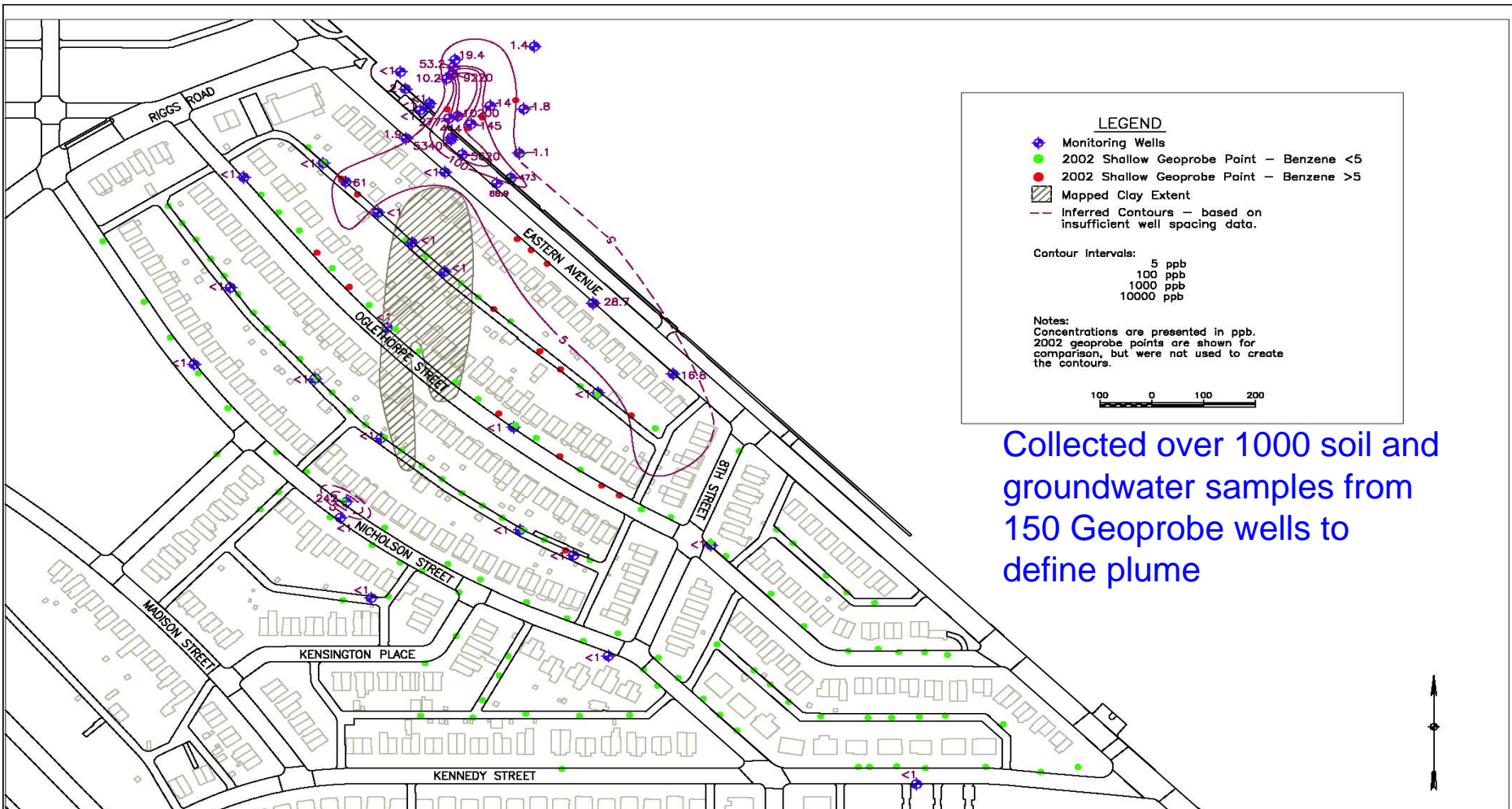


Health Concern – Vapor Intrusion



3-Step Sampling Protocol

- Step 1 - Sample groundwater to define the extent of the plume
- Step 2 - Sample soil vapor by selecting properties within the plume
- Step 3 - Sample indoor air by selecting properties where soil vapor data exceed thresholds or where basement is vulnerable to contaminated groundwater intrusion



Collected over 1000 soil and groundwater samples from 150 Geoprobe wells to define plume

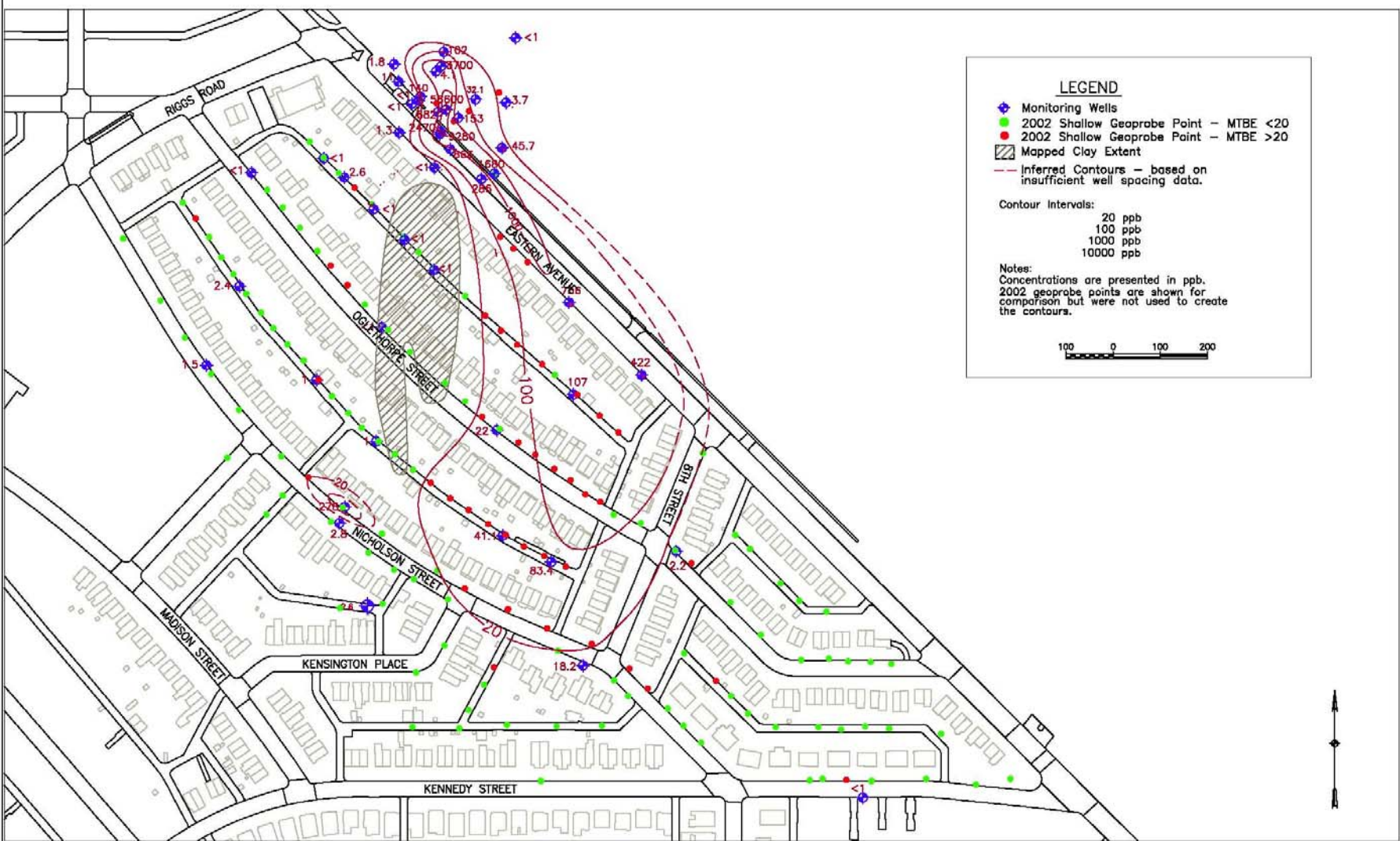


U.S. Army Corps of Engineers
10 S. Howard Street
Baltimore, Maryland 21040

PREPARED BY: PAD

DATE: December 2004

Benzene Shallow Plume
May-June 2004 Data from Shallow Wells



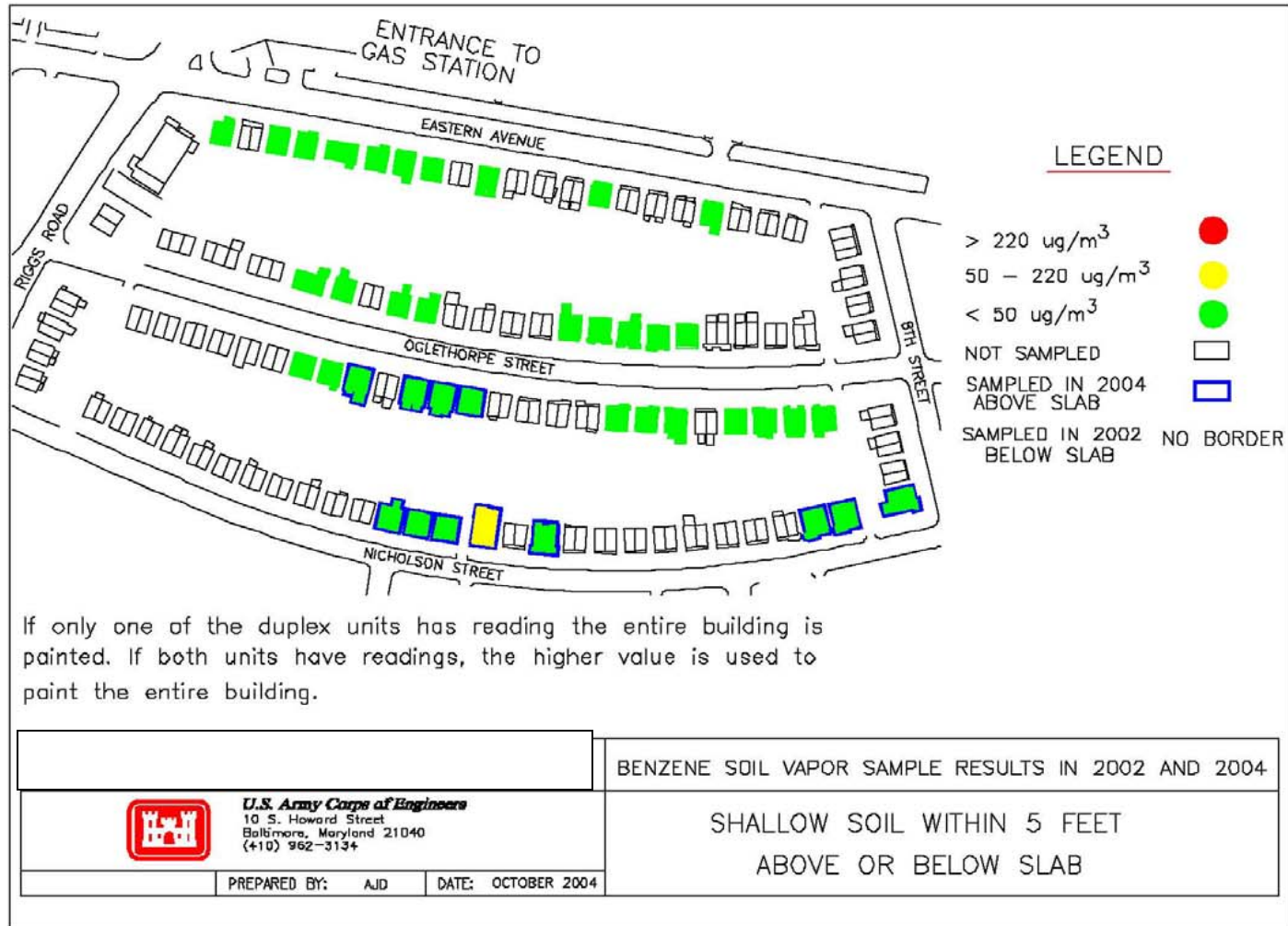
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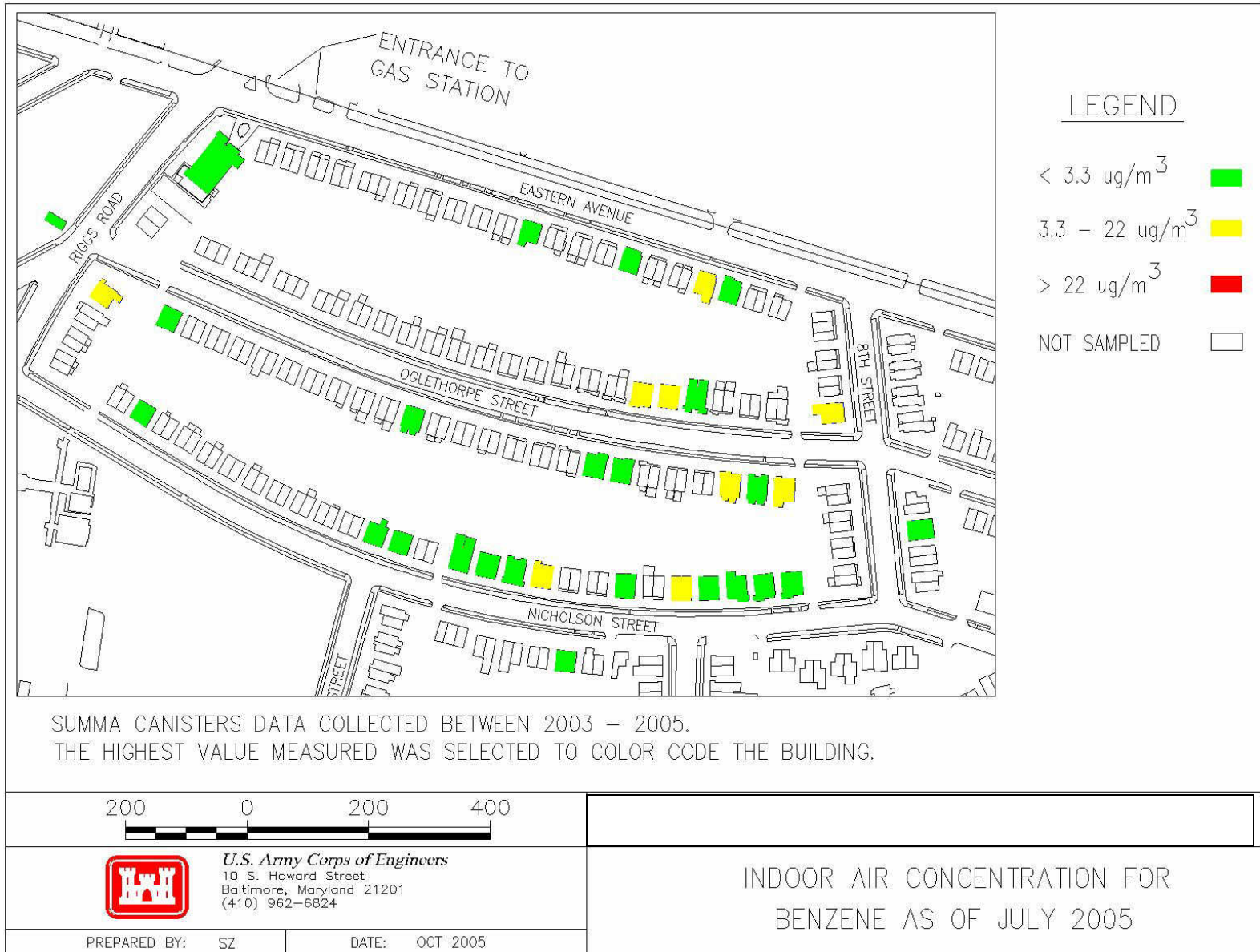
DATE: December 2004

MTBE Shallow Plume
May-June 2004 Data from Shallow Wells

90 Homes Sampled for Soil Vapor

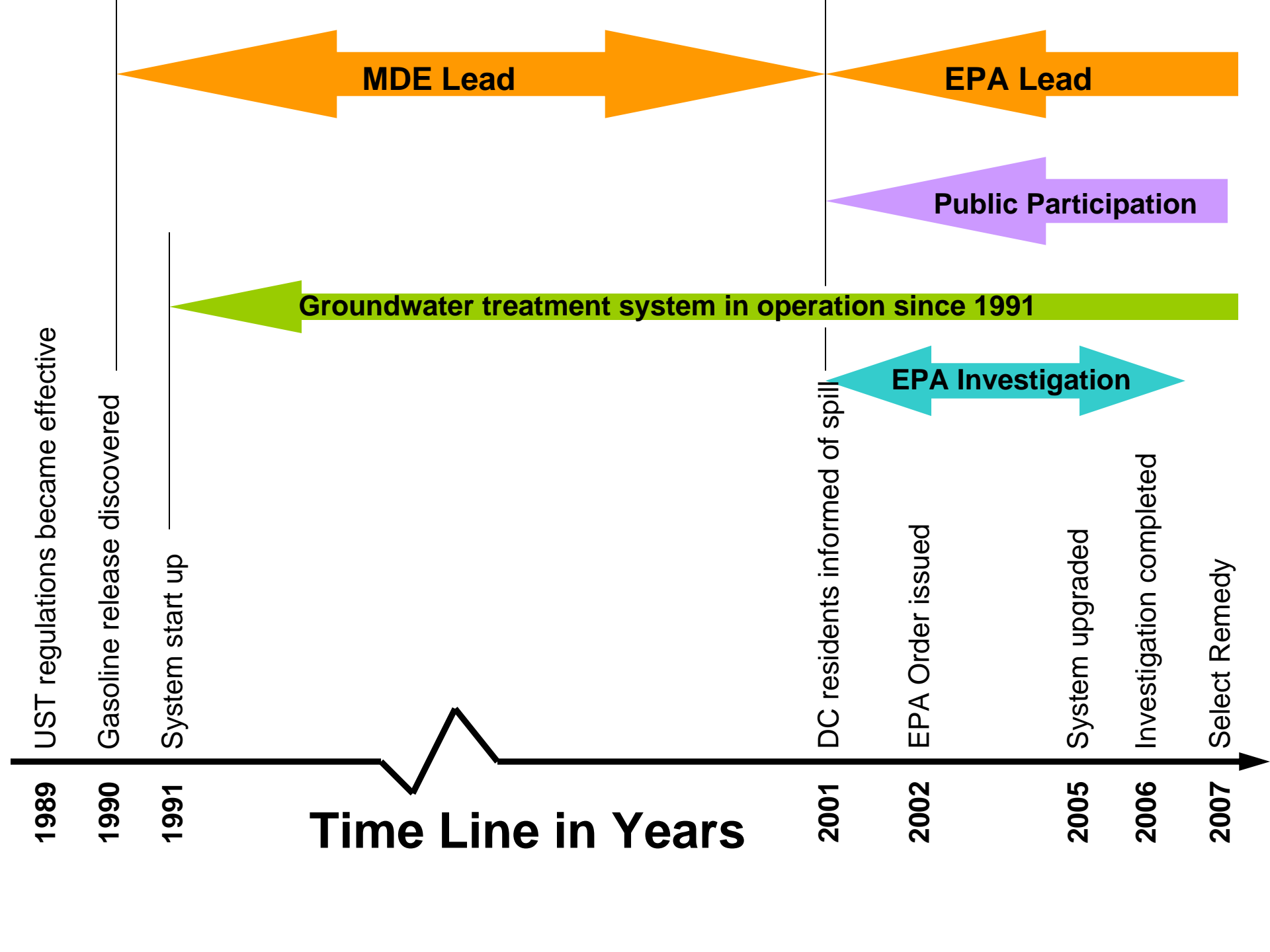


54 Homes Sampled for Indoor Air



3-Step Sampling Protocol

- Step 1 - Sample groundwater to define the extent of the plume
- Step 2 - Sample soil vapor by selecting properties within the plume
- Step 3 - Sample indoor air by selecting properties where soil vapor data exceed thresholds or where basement is vulnerable to contaminated groundwater intrusion



Neutral Facilitators

Superfund



GOVERNMENT OF THE
DISTRICT OF
COLUMBIA
Department of Health



Community
Involvement

RCRA



HSRC Outreach Programs for Communities
free technical assistance to communities with environmental contamination

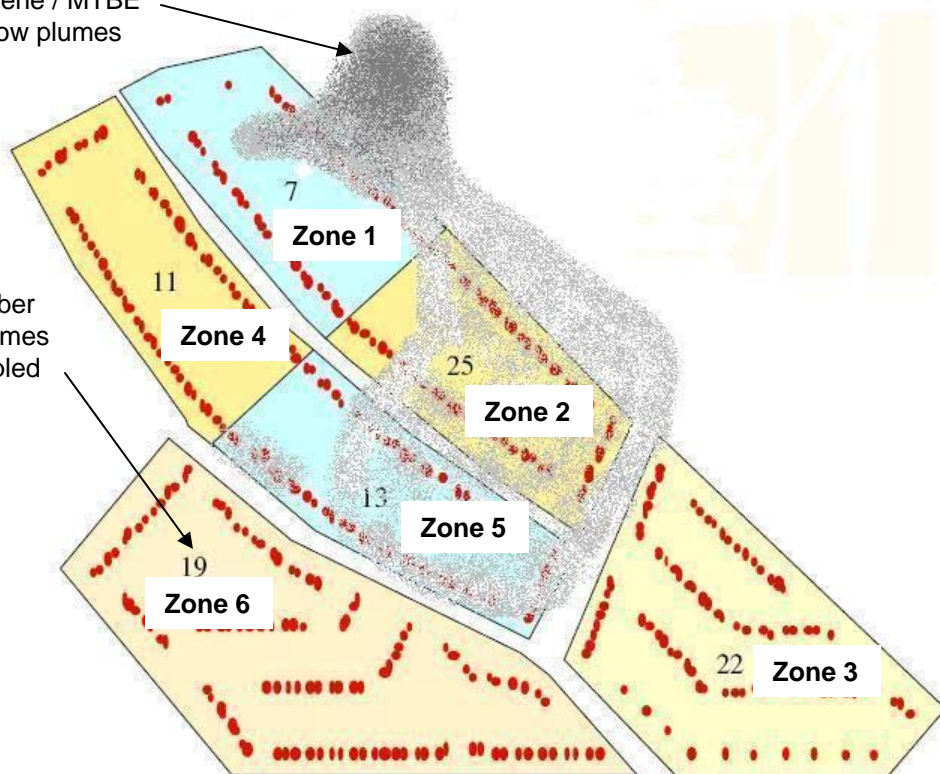
Parallel Investigation

- Community requested DC DOH to conduct independent sampling
- 97 homes were sampled for indoor air based on voluntary participation
- Results do not contradict with EPA's findings

	Number of	Benzene	(ug/m3)	MTBE	(ug/m3)
DOH indoor air data 2006	Samples	Average	95% <	Average	95% <
Outside plume (Zones 3,4,6)	52	2.7	8.0	2.8	17.2
Inside plume (Zones 1,2,5)	45	3.0	10.7	3.5	25.8

Benzene / MTBE
shallow plumes

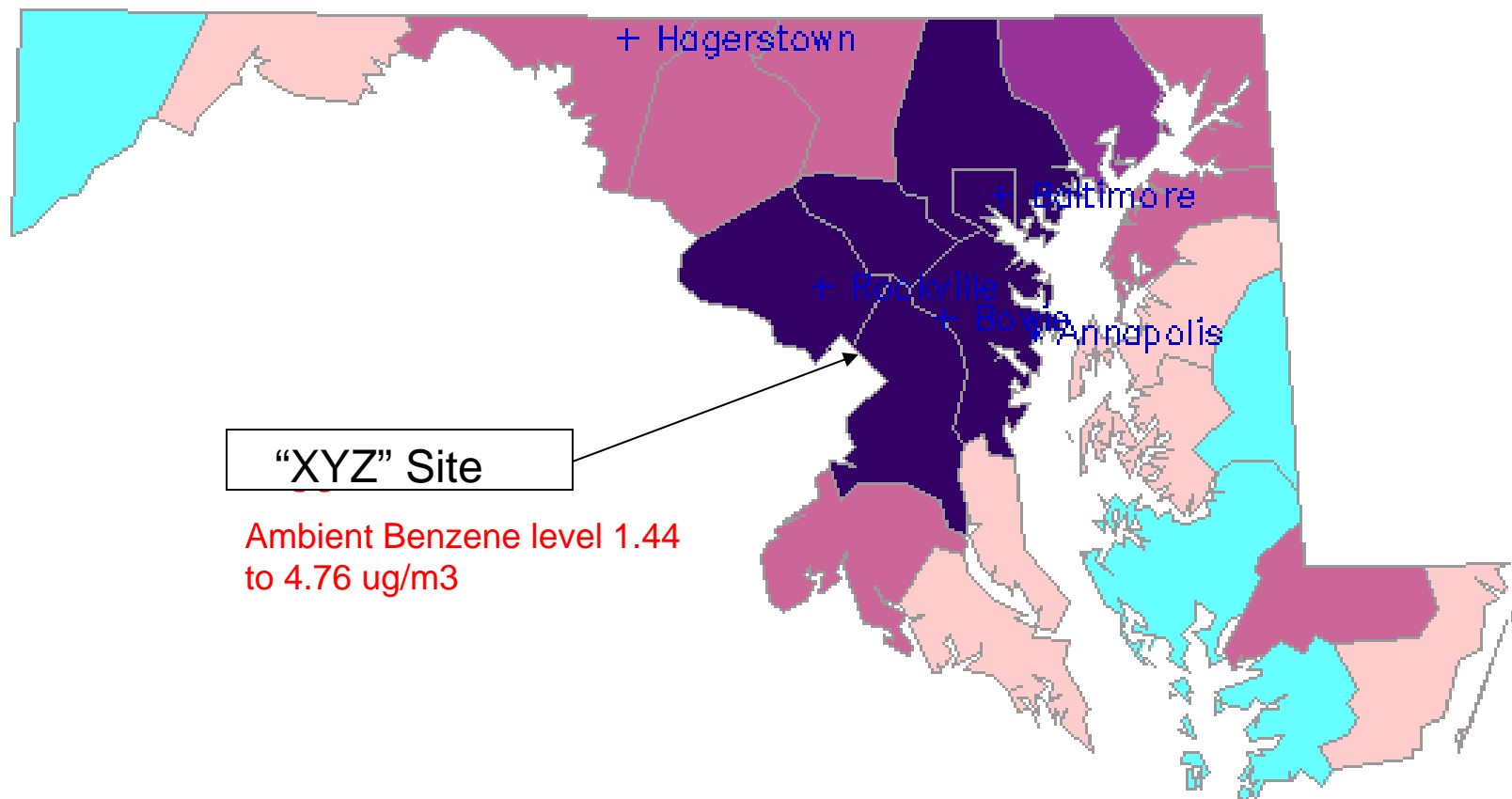
Number
of homes
sampled



Outdoor Ambient Air

	Number of	Benzene	(ug/m3)	MTBE	(ug/m3)
	Samples	Average	95% <	Average	95% <
DOH 2006 outdoor air data (Zones 3,5,6)	22	0.9	1.3	0.3	0.5
Chevron 2005 outdoor air data (Zone 5)	12	0.8	1.4	2.9	3.5
ACE 2005 outdoor air data (Zone 5)	12	0.8	1.2	2.7	6.1
McMillan Reservoir Station 1 (2006 data)	61	4.6		2.5	
McMillan Reservoir Station 2 (2006 data)	30	6.2		27.1	

1996 Estimated County Median Ambient Concentrations Benzene — MARYLAND Counties



Distribution of U.S. Ambient Concentrations

Highest In U.S.	4.76
95	1.44
90	1.14
75	0.81
50	0.65
25	0.57
Lowest In U.S.	0.48

County Median Ambient Pollutant Concentration
(micrograms / cubic meter)

Source: U.S. EPA / OAQPS
NATA National-Scale Air Toxics Assessment